

**Attachment**

**6**

***Stormwater Flood Management Grant Proposal  
City of Redwood City  
Monitoring, Assessment, and Performance Measures***

Attachment 6 consists of the following items:

- ✓ **Performance Measures.** The purpose of Attachment 6 is to describe the monitoring, assessment, and performance measures that will be used to evaluate the proposed project. These measures will ensure that this proposal meets its intended goals, achieves measurable outcomes, and provides value to the Region and the State of California.

For the Bayfront Regional Flood Protection System Improvements and 5<sup>th</sup> Avenue Pump Station Renovation Project in the Stormwater Flood Management Grant Proposal specific performance measures and monitoring approaches have been developed to assess project performance on an ongoing basis. The purpose of this attachment is to provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified. This attachment will identify data collection and analysis to be used by the proposed project.

This attachment will also discuss how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the Bay Area IRWM Plan. The project applicant has prepared a Project Performance Measures Table (included in this attachment) that includes the following:

- Project goals
- Desired outcomes
- Output indicators – measures to effectively track output
- Outcome indicators – measures to evaluate change that is a direct result of the work
- Measurement tools and methods
- Targets – measurable targets that are feasible to meet during the life of the project

The Project consists of two components designed to reduce the frequency of stormwater flooding. Various activities will be executed in order to meet the project goals (listed below). Project goals will each have performance measures that will be used to quantify and verify project performance. The performance measures that will be used to quantify and verify project performance are summarized in Table 6-1.

**Project Goals and Performance Measures**

Improve flood management- Monitoring for flood management improvements will include visual evaluations of flooding frequency and extent. Five flow monitoring stations, currently in place, will be used during the wet weather season following project completion to determine the effectiveness of water containment within the channels.

Reduce flooding frequency- The project will perform recorded visual observations, pre- and post-observations, to assess the number of flooding events. Monitoring the annual number of flood events in the project area will indicate the increase in flood protection resulting from the project. Additionally, five flow monitoring stations within the Bayfront Canal and Atherton channel drainage basins will record water flow rates during the wet weather season.

Protect public health and safety- The project will increase the public health and safety of the region by increasing the pump station capacity and constructing a flood wall to protect the public from health risks due to flooding. Reduction of flooding events will result in reduced hazard to traffic safety and reduced potential for debris or wastewater overflows associated with storm drain and sewer system inundation,

each of which pose a threat to human health and safety. Additionally, the project will reduce the need of flood clean-up or traffic control, minimizing the need to dispatch public safety.

Protect property, businesses, and transportation- The project will protect property and local businesses from flooding damages as well as from transportation disruptions in the region by upsizing the 5<sup>th</sup> Avenue pump station and installing the flood wall.

Improve water quality- The project will reduce the potential for sanitary sewer overflows (SSO) that could occur in the region during flooding events by upsizing the 5<sup>th</sup> Avenue pump station. Increasing the capacity of the 5<sup>th</sup> Avenue pump station would reduce the risk of flood water causing SSO incidences which would flow into local waterbodies.

Seismically improve storm water facilities- The project will improve the seismic safety by constructing both project components to current state seismic building codes. The project will bring the 5<sup>th</sup> Avenue pump station up to current seismic standards, thus increasing reliability during a seismic event.

Address climate change impacts- The project will address climate change impacts by installing a sheet pile flood wall along the Bayfront Canal and Atherton Channel to protect from the anticipated climate change impacts of rising sea level and increased storm activity.

**Table 6-1: Performance Measures Table**

<b>Project Goals</b>	<b>Desired Outcomes</b>	<b>Output Indicators</b>	<b>Outcome Indicators</b>	<b>Measurement Tools and Methods</b>	<b>Targets</b>
Improve Flood Management	Reduced flooding damage	Severity of flooding	Reduction in volume of flow surcharge during wet weather season	Records of flow at monitoring stations	Reduction in severity of flood events in the project area
Reduce Flooding Frequency	Reduced frequency of flooding	Frequency of flooding	Reduction in frequency of flow surcharge during wet weather season	Records of flow at monitoring stations	Reduction in number of flood events in the project area
Protect Public Health and Safety	Reduced flooding impacts on roads and potential for SSO	Road closures/diversions	Number of road closures due to flooding	Records of Public Works and Safety Personnel Response	Reduction in number of road closures in project area
Protect Property, Businesses, and Transportation	Reduce flood damage and costs to property, businesses, and transportation	Flood damage claims	Number of complaints or claims from residences and businesses	Records of flood damage complaints and claims	Reduced flood damage complaints and claims
Improve Water Quality	Reduced potential for SSO incidences and reduced sediment loading to SF Bay	Change in sediment loading	Change in sediment loading to Flood Slough	Visual observations	Reduction in sediment loading
Seismically Improve Stormwater Facilities	Bring seismic reliability of stormwater facilities to current standards	Seismic standards	Certified engineering design citing seismic standards	Verification that project designs meet seismic building standards	Compliance with State seismic building codes
Address Climate Change	Increased protection from rising tides and increased storm intensity	Change in height for channel walls	Quantification of flood events in the project region	Control of impacts from flood events from combined storm and high tide events	Channel and pump station works effectively as flood control system

